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ABSTRACT

The first of a series of productivity primers examining the interrelationship among vocational education, productivity, and economic development, this volume contains selections from a national conference on the role of vocational education in economic development and productivity that was held in Columbus, Ohio from June 24 through June 26, 1981. Presented first is the conference agenda. The second section of the document deals with an NBC white paper documentary entitled "If Japan Can, Why Can't We?" Included in this section are an introduction to the NBC white paper, a summary of the film, and the text of panel members' reactions to the documentary. Next, existing vocational education programs designed to foster economic development and productivity in three states--Ohio, Florida, and Georgia--are described. Covered in the fourth section is Oklahoma's strategy for increasing productivity. A summary of overall reactions of business and industry representatives to the conference concludes the report. (MN)

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Special Publication Series No. 35

ED226151

PRODUCTIVITY PRIMER
General Introduction
and
BOOK 1: **SELECTIONS**
from
THE NATIONAL CONFERENCE ON THE ROLE OF VOCATIONAL EDUCATION IN ECONOMIC DEVELOPMENT AND PRODUCTIVITY

Sponsored by:
The National Center for Research in Vocational Education

THE NATIONAL CENTER FOR RESEARCH IN VOCATIONAL EDUCATION

The National Association of State Directors of Vocational Education

NATIONAL VOCATIONAL EDUCATION PROFESSIONAL DEVELOPMENT CONSORTIUM INC.

Columbus, Ohio
June 24-26, 1981

The National Center for Research in Vocational Education
The Ohio State University
1960 Kenny Road
Columbus, Ohio 43210

CE 034 957

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- Generating knowledge through research
- Developing educational programs and products
- Evaluating individual program needs and outcomes
- Providing information for national planning and policy
- Installing educational programs and products
- Operating information systems and services
- Conducting leadership development and training programs

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FOREWORD

The National Center for Research in Vocational Education is pleased to provide you with this *Productivity Primer.* What is the *Primer*? It is a compilation of some of the outcomes of the National Center's initial investigation into the substance of economic development, productivity, and the role of vocational education. It also provides the selected work of others who have a close alliance with the National Center and who share similar concerns and interests in these important substantive areas.

The *Primer* is comprised of a number of parts or units, which may be used independently or in conjunction with other resources. The first part contains selections from the proceedings of the National Conference on the Role of Vocational Education in Economic Development and Productivity. The document is a compendium of provocative thoughts, issues, facts, and practical approaches to program development and implementation, and it presents the perspectives of educators, business people, economists, and others. Next is a position paper of the National Association of State Directors of Vocational Education, which is entitled "The Role and Responsibility of Vocational Education. in Economic Development and Productivity. "Following that is a concept paper developed by the "American Association of Community and Junior Colleges entitled "Putting America Back to Work." Next is "Economic Development and Productivity: "A Potpourri of Thoughts, Concerns, Facts, and Projections." which is a compilation of information useful as a quick, ready-reference to some of the issues and concerns related to economic development, productivity, and vocational education. The "Potpourri" is presented in a format useful for instructional purposes. Also included in the *Primer* is a series of Occasional Papers developed for the National Center by leading national and international figures. These Occasional Papers speak individually and collectively to many of the issues of concern in this vital topic area.

I wish to extend grateful appreciation to those who worked to develop this *Primer.* They include: M. Catherine Ashmore, Director of Marketing at the National Center and Mark Newton, Director of the National Academy for Vocational Education, who served as compilers of the *Primer;* Catharine Warmbrod, Research Specialist, who provided the original edit of the conference proceedings; Constance M. Faddis, Program Assistant, who edited the final document; and Sharon L. Fain, Program Assistant, writer.

It is my hope that you will find this *Productivity Primer* both instructive and provocative. With thoughtful progression, and some risk-taking as well, we can foster a significant role for vocational education in addressing the concerns of economic development and productivity in the United States.

Robert E. Taylor
Executive Director
National Center for Research
in Vocational Education

PRODUCTIVITY PRIMER
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- Book 4:
  Economic Development and Productivity: A Potpourri of Thoughts, Concerns, Facts, and Projections
- Book 5:
  A Collection of Occasional Papers on Economic Development and Productivity

Anthony P. Carnevale –	*The Real Supply-Side Economics*, 1982
Amitai Etzioni –	*Reindustrialization and Vocational Education*, 1981
Rupert E. Evans –	*Vocational Education and Reindustrialization*, 1981
Marvin Feldman –	*Work, Employment, and the New Economics*, 1981
Leonard A. Lecht –	*Vocational Education as a Participant in the Economic Development Enterprise: Policy Options for the Decade Ahead*, 1981
Herbert E. Striner –	*The Reindustrialization of the United States: Implications for Vocational Education Research and Development*, 1981
Dennis J. Sullivan –	*Improving Productivity in the Work Force: Implications for Research and Development in Vocational Education*, 1981

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FOREWORD

The National Conference on the Role of Vocational Education in Economic Development and Productivity was extremely successful. Three target groups came together for three days of candid discussion to share information and work toward consensus on critical issues. These groups included state directors of vocational education, executives from business and industry, and personnel responsible for economic development efforts across the United States.

The National Conference was a collaborative effort among the National Academy of the National Center for Research in Vocational Education, the National Vocational Education Professional Development Consortium, Inc., and the National Association of State Directors of Vocational Education. This alliance successfully addressed the challenge of beginning to define a role for vocational education in economic development and productivity.

I wish to thank the many people who worked hard to develop and conduct the National Conference. They included: Mark Newton, Director of the National Academy for Vocational Education; Daniel Dunham, Associate Director, International Division, the National Center for Research in Vocational Education; John W. Struck, Executive Director of the National Vocational Education Professional Development Association; Carrol E. Burchinal, President of the National Association of State Directors of Vocational Education; and Audni Miller-Beach, Graduate Research Associate at the National Center.

Robert E. Taylor
Executive Director
The National Center for Research
in Vocational Education

INTRODUCTION

This document reflects a great deal of the content shared at the 1981 National Conference on the Role of Vocational Education in Economic Development and Productivity. The three-day conference was audiotaped in order to provide the vocational education community with the essence and substance of an exemplary national forum.

A number of sections comprise this coverage of current knowledge and opinion regarding economic development, productivity, and vocational education. They are: the program agenda, including its purpose and objectives; a synopsis and discussion of the provocative NBC documentary film, *If Japan Can, Why Can't We?;* transcriptions of presentations on state program models and strategies for economic development and productivity; and overall reactions and comments of business/industry representatives to the National Conference.

This document presents a variety of perspectives regarding the pervasive concerns of economic development and productivity and their relationships to the vocational education community.

Mark Newton
Director
The National Academy for
Vocational Education

Part I
CONFERENCE AGENDA

NATIONAL CONFERENCE ON THE ROLE OF VOCATIONAL EDUCATION IN ECONOMIC DEVELOPMENT AND PRODUCTIVITY

The National Center for Research in Vocational Education
Columbus, Ohio

June 24-26, 1981

Sponsored by

The National Vocational Education Professional Development Consortium, Inc.
John W. Struck, Executive Director
Carrol E. Burchinal, President

The National Center for Research in Vocational Education
Robert E. Taylor, Executive Director
Ferman B. Moody, Associate Director, Personnel Development
Mark Newton, Director, The National Academy for Vocational Education

In Cooperation With

The National Association of State Directors of Vocational Education
James L. Reid, Executive Director
Carrol E. Burchinal, President

Conducted by

The National Academy for Vocational Education

NATIONAL CONFERENCE ON THE ROLE OF VOCATIONAL EDUCATION IN ECONOMIC DEVELOPMENT AND PRODUCTIVITY

PURPOSE

The purpose of the National Conference is to provide a forum for an analysis of the role of vocational education in economic development and productivity. Emphasis is on promoting an exchange of information and ideas among participants who represent leadership constituencies in both the private and public sectors, specifically: state directors of vocational education; state staff responsible for developing linkages with business, industry, and labor; and key representatives of the business/industry community.

OBJECTIVES

1. To identify the major issues pertaining to economic development and productivity
2. To determine the implications of major issues in economic development and productivity for vocational education
3. To begin a process of clarifying positions held by the various participants concerning the role of vocational education in economic development and productivity
4. To promote candid discussions leading toward the enhancement of relationships between private and public constituencies concerned with economic development and productivity
5. To exchange strategies and approaches as well as offer an exemplary model related to the involvement of vocational education in economic development and productivity
6. To provide resource documents to assist participants in developing a thoughtful analysis and understanding of the issues involved in vocational education's role in economic development and productivity

PROGRAM

NATIONAL CONFERENCE ON THE ROLE OF VOCATIONAL EDUCATION IN ECONOMIC DEVELOPMENT AND PRODUCTIVITY

The National Center for Research in Vocational Education
Columbus, Ohio

June 24-26, 1981

Wednesday, June 24

1:30 p.m. FIRST GENERAL SESSION

Presider:
Daniel B. Dunham
Associate Director, International Development
The National Center for Research in Vocational Education

Greetings and Remarks:
Robert E. Taylor
Executive Director
The National Center for Research in Vocational Education

Carrol E. Burchinal
President
National Vocational Education Professional Development Consortium, Inc.
National Association of State Directors for Vocational Education
State Director for Vocational Education
North Dakota

Ferman B. Moody
Associate Director, Personnel Development
The National Center for Research in Vocational Education

Conference Overview:
Mark Newton
Director
National Academy for Vocational Education

Audni Miller-Beach
Graduate Research Associate
National Academy for Vocational Education

2:00 p.m. NBC WHITE PAPER: "IF JAPAN CAN, WHY CAN'T WE?"

Introduced by:
Leo Presley
Productivity Management Consultant
Oklahoma Bureau of Vocational Education

3:45 p.m. AMPLIFICATION OF ISSUES CONCERNING ECONOMIC DEVELOPMENT AND PRODUCTIVITY (Panel and large-group dialogue)

Moderator:

Jerry Olson
State Director for Vocational Education
Pennsylvania

Panel:

Joe Mills
State Director for Vocational Education
Florida

Bill Ashley
Research Specialist
The National Center for Research in Vocational Education

Betty Abbott
Field Service Representative
Nebraska Department of Economic Development
Omaha, Nebraska

Dave Hughes
President
National Oats Company
Cedar Rapids, Iowa

Floor Discussion

Thursday, June 25

9:00 a.m. SECOND GENERAL SESSION

Presider:

James Athen
State Director for Vocational Education
Iowa

Vocational Education and Reindustrialization
(Paper prepared by Rupert N. Evans, Professor, University of Illinois)

Presenter:

Daniel B. Dunham

Vocational Education as a Participant in the Economic Development Enterprise: Policy Options for the Decade Ahead

Presenter:

Leonard A. Lecht
Consulting Economist
New York, New York

Floor Discussion

10:30 a.m. SMALL-GROUP DISCUSSIONS

Topic:

Implications of Economic Development and Productivity Issues for Vocational Education

Noon — LUNCHEON SEMINAR

Presider:
Robert E. Taylor

Topic:
The Role of Vocational Education in Economic Development, Productivity, and Reindustrialization: The Federal Perspective

Speaker:
Kent Lloyd
Deputy Undersecretary Designate
U.S. Department of Education

1:45 p.m. — THIRD GENERAL SESSION

Presider:
Charles B. Dygert
Director
Educational Communication for Domestic and Foreign Business and Industry
Ohio Department of Education

Topic:
The Role of Vocational Education in Economic Development and Productivity: The Perspective of Business, Industry, and Labor

Panel:
William Klein
Vice-President
Florida Power and Light
Miami, Florida

Doreen Boyce
Director
Microbac Laboratories, Inc.
Pittsburgh, Pennsylvania

Gene Meeker
President
Waterloo Chamber of Commerce
Waterloo, Iowa

Jack Whiteman
Owner
Empire Machinery Company
Phoenix, Arizona

Floor Discussion

DISCUSSION GROUPS

1. *State Directors Consider Draft Position Paper on the Role of Vocational Education in Economic Development and Productivity*

Chair:
Robert Sorenson
State Director for Vocational Education
Wisconsin

2. *The Participation of Vocational Education in Economic Development and Productivity: An Information Exchange on State Strategies*

Chair:
Leo Presley
Productivity Management Consultant
Oklahoma Bureau of Vocational Education

3. *Business/Industry/Labor Representatives React to What They've Seen and Heard*

Chair:
Kenneth Myers
Personnel Manager
R.T. French Company
Shelley, Idaho

7:30 p.m. CONFERENCE BANQUET

Toastperson:
John W. Struck
Executive Director
National Vocational Education Professional Development Consortium, Inc.

Introduction of Speaker:
Robert E. Taylor

Speaker:
Anthony P. Carnevale
Consulting Economist
Washington, D.C.

Topic:
Implications for Vocational Education in Economic Development:
A Supply-Side Perspective

Friday, June 26

9:00 a.m. FOURTH GENERAL SESSION

Presider:
Francis Tuttle
State Director for Vocational Education
Oklahoma

An Exemplary Approach to Vocational Education's Role in Productivity

Presenter:
Leo Presley
Productivity Management Consultant
Oklahoma Bureau of Vocational Education

Floor Discussion

10:45 a.m. DEBRIEFINGS BY DISCUSSION GROUP REPRESENTATIVES

1. State Directors of Vocational Education – Robert Sorenson
2. Business/Industry/Labor Representatives – Kenneth Myers
3. State Staff – Leo Presley

11:00 a.m. CONCLUDING REMARKS

Robert E. Taylor
John W. Struck

Part II
IF JAPAN CAN, WHY CAN'T WE (Produced by NBC)*

- **Introduction (Leo Presley)**
- **Summary of Film**
- **Panel Members**

*Permission for use granted by NBC

Introduction to the NBC White Paper

Leo Presley
Productivity Management Consultant
Oklahoma State Department of
Vocational and Technical Education

We are about to see a documentary film produced by NBC. It was aired publicly for the first time in July of 1980. The title of it is "An NBC White Paper: If Japan Can, Why Can't We?"

Japan's is a success story of what productivity is all about. At the end of World War II, the Japanese exported raw materials and imported finished products. They now import most of their raw materials and export the finished products—high-quality products, which are a sharp contrast to the cheap merchandise they were known for in the 1950s.

A quality circle facilitator employed by General Electric, who recently returned from a tour of Japan, told me that Japanese manufacturers are convinced they can penetrate any industry they want, and can in a few years dominate that industry worldwide. This has been their record with the textile, steel, and automobile industries. I have an article on my desk, published in 1979, that says, "Congratulations, U.S., you're only number two now." The Japanese say this because in 1979 Toyota out-produced and outsold General Motors worldwide. They have singled out the electronics industry for the 1980s, and that has firms such as IBM and Texas Instruments worried. It is in this context that the first half of the NBC film highlights Japan's industries.

The second half of the film pinpoints some industries in the United States that are leaders in the area of productivity. We will take a look at the Donnally-Mirrors Company in Holland, Michigan, and some of the unique concepts they have. Then we'll see Nucor Steel in North Carolina, which is the only steel mill in the United States that produces steel and delivers it dockside cheaper than do the Japanese companies. They have some interesting management concepts and arrangements with their employees. Then we'll take a look at Romac Industries in Seattle, Washington, which has another innovative approach to productivity.

So, on behalf of the National Center and the National Broadcasting Corporation, I am proud to present to you the film, "If Japan Can, Why Can't We?"

Summary of the Film
If Japan Can, Why Can't We

Sharon L. Fain
Program Assistant
The National Center for
Research in Vocational Education

"In a recent American study of one type of integrated circuit in the brains of a computer, the best American product failed six times more often than the best Japanese product. Six times."

These are the words of Lloyd Dobyns, one of the authors of the NBC White Paper "If Japan Can, Why Can't We?" In these two brief statements, he has captured the essence of the American economic situation. Our productivity is down. Worker attitudes are poor. Other countries are surpassing the United States in both the production and quality of goods. The preeminence of the United States as a world economic power is vanishing.

What is happening to the United States, the "strongest, most productive force the world has ever known?"

Dobyns attempts to answer this question by comparing industrial practices in the United States with those in one of the most rapidly developing nations on earth: Japan. This tiny country, about 1/25th the size of the United States, is a nation that must import nearly 90 percent of its raw materials. It is also a nation where, after World War II, per capita income was 200 U.S. dollars per year. Yet today, Japan is the third most productive country in the world. It has the highest annual productivity growth rate in the world. Per capita income is 8,000 U.S. dollars per year. And the last ironic twist to the story is that the Japanese learned their lessons in productivity from the country that for the last three years has had an annual productivity growth rate barely above zero percent: the United States.

The United States: What Are We Doing Wrong?

Since the beginning of our history, few nations have rivaled the United States' record for determination, innovation, and production. We still have the most highly productive agriculture system in the world. Unfortunately, the same can no longer be said of our industrial system.

Just *what* is wrong with the American industrial system, and what has caused the problem, is the subject of great debate even among the "experts." Dobyns begins his exploration into the problems of American productivity by highlighting the one factor the experts *do* agree on: that opposing attitudes between the American government and industry representatives are throwing a monkey wrench into our attempts to improve productivity.

Perhaps the most concrete examples of government-industry antagonism come from American small businessmen. In their opinion, government intervention and regulation are preventing them not only from operating their businesses in a productive manner, but also from investigating new and innovative methods for production. The Occupational Health and Safety Administration (OSHA) seems to be a favorite target for their complaints.

OSHA required one company, for example, to move a stairway railing a quarter of an inch so that people with thick fingers could grab it more easily. Another company was cited for the operation of an ungrounded typewriter; yet the nameplate on the machine stated "double insulated." Still another company, one that experiments with "fish farming" and the development of alternative protein sources, was required to file the same permits and reports as a human sewage treatment plant before it could begin operations—a process that took six months to complete.

The owners of such companies say that government regulations fall most heavily on small businesses because they can least afford to fight them. They also feel that the regulations often are written to "maintain things as they are," and not to encourage improvement or change. Unfortunately, these small businessmen are fighting government regulations in much the same way the large manufacturers are: by refusing to cooperate with government planning efforts.

Now for the other side of the story. Government officials cite "reluctant attitudes" on the part of industry as a barrier to their attempts to improve productivity. According to Jerry Jasinowski, assistant secretary for policy, U.S. Department of Commerce, even when companies are given advance notice of forthcoming regulations, they do not spend their time planning how to meet or cooperate with the new specifications. Instead, they concentrate on ways to "put it off" or "how to stop it." And in the words of former president Jimmy Carter:

> I remember the first few months that I was President . . . talking to the leaders of the American automobile manufacturers . . . encouraging them to comply with the impending legislation in Congress to require the production of small and efficient automobiles for the American market. Their unanimous reply was that this was not an appropriate thing for them to do . . . that the market was not there for the small and efficient automobile.

In the meantime, our foreign competitors were working with their research staffs on ways to meet the new specifications.

Each of these situations illustrates the shortsightedness of both government and industry thinking. While the disputes over regulation rage, customers and markets are being lost. Profit margins become too slim to allow investment in new equipment or facilities. Fewer dollars can be plowed back into research and development efforts. Our country turns to short-term payoffs instead of long-term investments. And all the while, we are losing ground in the world productivity race.

Perhaps the situation is best summarized by the words of Herbert Striner, dean of the Kogod College of Business Administration at the American University, as he compares the procedures for government-industry interaction in Japan with those in the United States:

> Part of what happens in Japan is that the government will sit down with the manufacturers and determine what they [the government] can do to help . . . what they can do to cooperate for the benefit of the entire economy. Here, we have this adversarial relationship; this clean, clear demarcation that we so love between government and industry. Except, of course, that this [relationship] doesn't really exist in many cases. Perhaps the difference is that the [government] tends to help industries after they've reached the point of going bankrupt.

Japan: What Are They Doing Right?

> First of all, let me tell you that the productivity game was taught to us by the Americans. We are very fortunate to have America as a good teacher, and we always try to be a very good student . . . that's what made it possible [for us] to be somewhat competitive in the international market with U.S. industries.
>
> – Joji Arai

Joji Arai is the head of the Washington, D.C. office of the Productivity Center, a unique Japanese institution that provides training for thousands of Japanese management and union personnel, sends study teams abroad, and publishes reams of research information on productivity. In short, this institution does everything it can to make "productivity" a household word in Japan.

As a high-ranking official in the Productivity Center, and as a long-time United States resident, Arai is singularly well suited to deliver this stinging statement. Since 1962, he has been watching the productivity progress of the United States, and has been helping Japanese businessmen learn from our mistakes and triumphs. Unfortunately, we haven't been learning the same lessons.

In 1980, the Productivity Center helped 450 Japanese businessmen make contact with their American counterparts. Twenty American businessmen visited Japan through the same program. Perhaps these figures are symbolic of the traditional American attitude that "we are the leaders. No one can teach us anything new." But the Japanese can, and are, setting new examples that the United States should heed.

Perhaps one of the biggest differences between American and Japanese corporations is found in worker attitude. Prework meetings, where employees gather to sing the company song and exhort each other to do better, are common occurrences in Japan. Loyalty to an employer approaches almost the "kinship" level. Employee suggestions on how to improve operations or correct technical problems average ten per worker per year. And on the hard-line economic side of the story, most Japanese workers tend to save over 20 percent of their disposable income; thus a ready supply of capital for industrial expansion and improvement is assured.

The question now becomes "why?' Why do Japanese workers have this cooperative attitude, whereas American workers do not? The answer is found in the attitude of employers toward employees.

In Dobyn's words, "Japan's industries take care of their workers in ways almost unknown in the United States—providing everything from cut-rate family stores to lifetime employment." Employees are permitted and encouraged to take exercise breaks throughout the day to relieve monotony and tension. Recreational facilities are provided by the employers for after-work activities. Good ideas on how to improve production can win employees a paid vacation and cash bonus. Meetings of company quality control circles guarantee employees' rights to offer input into the problem-solving process. And perhaps most important of all, Japanese workers know that even in harsh economic times, their jobs are assured.

How are such benefits and opportunities possible? For one thing, the Japanese are quick to support the "sunrise industries," new industries that show potential. They are equally quick to cut loose the "sunset industries," or old industries that are growing less profitable—the kind of industries that the United States government often supports. Yet the Japanese worker is protected. The Mitsubishi Company's Hiroshima shipyard is a prime example of this process.

Late in the seventies, the Japanese government decided that the country should reduce its shipbuilding capacity and turn to a more profitable venture. In this case, the more profitable venture was the construction of drilling rigs for oil exploration. The Mitsubishi Company's shipyard consumption of steel dropped from eleven thousand tons per month to two thousand tons per month. The company's work force was also reduced by seventeen hundred employees; yet no one was fired or laid off. Some of the employees were sent to work on the construction of an oil rig near the New Jersey coast. Others were transferred to different Mitsubishi operations, or were loaned to other industries. But no matter what happened, their jobs were safe and their company moved into a new, expanding, and profitable field of foreign trade.

As Dobyn remarks: "Out of an old business and into a new one with no layoffs and minimum loss."

Yet Japan's innovative attitudes do not stop at the employee level. Constant improvement of industrial facilities and equipment is also a large part of the Japanese strategy. For example, at a cost of $3 billion and ten years of construction, the NKK Steel Company opened its new facilities in Ohgishima in 1976. Built with the latest in industrial technology, the facility can produce more steel than the plant it replaced with fewer than half the workers. The equipment in this plant replaced equipment that was thirty years old. The average productivity rate of employees at the new plant has tripled. And a large part of the project was financed by the savings of Japanese workers.

Contrast this plant with the typical steel plant in the United States. We have yet to make wide use of what is perhaps the most advanced and efficient technology in the world: robotics. Much of the equipment now in use is fifty or more years old. American companies cannot raise the capital necessary to purchase this new equipment, and cannot figure out what to do with a surplus employee population. In the meantime, Japanese steel manufacturers are undercutting the prices of American companies in many world markets.

Perhaps the Japanese system can be viewed as a continuous cycle with a "bottom-up" orientation. From employee to employer, from employer to government, and from government to market and back again, the system is working. Japan now sets industrial standards that used to be measured by American products. The difference is a commitment to productivity that is part of a national goal. And to reach that goal, the Japanese hired Americans to teach them what to do and how to do it.

We have not learned our own lessons.

If They Can Do It, We Can Too

There is a note of hope in this story. Slowly but surely, American corporate leaders are realizing that they can no longer depend on traditional, top-down systems of management. They are starting to look for and learn the strategies that will not only improve our nation's productivity, but also help us to regain our world economic status.

Perhaps our examination of what the United States is "doing right" should begin with a Japanese-owned company that is located in the United States and is staffed with American workers. Not surprisingly, there are a number of such operations across the country.

One of these companies is located in the suburbs of Chicago: a once-failing Motorola facility that was taken over by Matsushita, a giant Japanese electronics and home appliances firm. Under Motorola management, there were approximately 150 defects found for every 100 television sets

manufactured. Yet the basic work force here has not changed: many of the Motorola employees were retained when Matsushita took over the company. What *has* changed, according to company president Richard Kraft, is the management structure:

> We now basically believe in the concept of dealing directly with our people. We like to feel close to our people. We like to keep them informed. We also like to hear from them about their problems and ideas . . .

Each week, workers on the lines meet with their immediate supervisor to hear what the company is doing and what it is planning—a process much like the Japanese quality circle meetings. Signs that encourage worker quality and efficiency are scattered around the plant. Recreational programs have been instituted. "Family activities" such as a spring fashion show are common occurrences.

Additional facility and equipment improvements have also been made in the plant. New assembly lines were installed so that each worker can stop the circuit board, do what has to be done, and send it on. Under the old Motorola system, workers had to chase the sets down the assembly line in order to complete or correct their tasks. New Matsushita machinery has also helped to automate and speed up the process of circuit board building—a normally laborious and time-consuming task. And the system is working.

The Matsushita plant is an example of an established American industry that has been radically "remade" by the Japanese. But what about the new, domestically founded and managed American industries?

Romac Industries in Seattle, Washington, is a prime example of this new breed. In this company, production workers vote on each other's raises on the theory that no one knows how well you work better than your coworkers. Here is an example of how that system works:

Question: Bob, when you decided you wanted a raise, what did you do?

Romac employee: I went to the plant manager and asked him for a raise slip . . . you write how much you want more an hour. . . . Everything I said was real sincere. . . . I put in that my quality and quantity [of work] was up to [a high] level. . . . It was up there a week.

Question: And who votes?

Romac employee: All the employees here . . . the people that you work with see more than your managers do.

Question: You got your raise?

Romac employee: Yeah, it was unanimous . . .

This revolutionary pay system is just part of Romac's plan to improve productivity. Another part is a monthly meeting between worker representatives and the company president. No intermediate supervisor is allowed at the meeting, and no question is prohibited. Once a year, each official of the company must spend a day working in the plant: this way, says company president Manford McNeil, no official will forget where the profits really come from. Finally, a company profit-sharing plan was developed so that everyone benefits from everyone else's work: a striking reward for cooperation and group effort.

In Lloyd Dobyn's words, Manford McNeil, the man who founded Romac, is convinced that this system is building productivity and trust. He is also convinced that his strategies will eliminate the traditional American labor-management adversary relationship. And the system is working.

Finally, some news from America's largest production system: the automobile industry. Here the most striking example of productivity improvement belongs to the General Motors Corporation's (GM) Quality of Work Life programs.

The Quality of Work Life programs are designed to improve the product by both increasing worker participation and making the employee's life better. Workers meet regularly to discuss how to spot and correct defects as they occur on the assembly line. Worker input is also encouraged on how to make working at the plant more pleasant. In addition, workers are permitted to switch jobs, a tactic that relieves the persistent problem of monotony. Here is how it is working:

In 1970, GM's Tarrytown, New York operations had the worst labor relations and production records of any GM assembly plant. Many top officials in the company wanted to shut down the plant, but a handful of GM executives and the United Auto Workers union agreed to try again. The process took seven years, enormous patience, hard work, and more than $1.5 million. Today, with the rest of the auto industry in a slump, the Tarrytown plant is setting astounding new production records.

From each of these examples, it is apparent that the blame for America's low productivity scores should not fall on the workers. Technological advances and societal changes have made our traditional systems of management obsolete. It is time for new thoughts, new attitudes, and new techniques. America is working on it.

The Man Behind the Scenes

Throughout this paper, it has been stated several times that "the Japanese learned their lessons in productivity from the Americans." It is now time to explore the history behind that statement.

W. Edward Deming, a statistical analyst, is the man responsible for most of the teaching. In 1950 Deming went to Japan, then an economically troubled country, to share his views on how to increase efficiency, quality, and productivity. In his words:

> What I saw was a magnificent work force, unsurpassed management, and the best statistical ability in the world. It seemed to me that those three forces could be put together (and I put them together) so that Japanese quality, instead of being shoddy, became known within a few years. In less than *four* years, manufacturers all over the world were screaming for protection.

Deming's approach emphasizes *practical* statistics. As each component of the manufacturing process is analyzed scientifically, each worker becomes aware of what has to be done and how it *should* be done. Areas for adjustment and improvement can be easily calculated. Worker loyalty and enthusiasm are instantly generated because everyone is involved in the decision-making process. And on the management side of the operation, officials can observe the production of the same product hour after hour, day after day. Thus they are constantly aware of what they can produce, and how much it is going to cost.

In theory, Deming's program is a logical one. And if the Japanese can serve as an example, the program is a successful one. Yet according to several corporate leaders in the United States, the use of statistical analysis in *our* manufacturing processes never gained acceptance because of a lack of top management support. Today, there is still widespread debate about the program's value in improving the productivity of American industries. Perhaps the question here is not whether the system works, but whether American management is willing to spend the time, effort, and money to *let* it work.

Deming is now employed by the Nashua Corporation, a "Fortune 500" company that enjoys annual sales in excess of $6 million. Nashua began its operations in 1904 as a small New Hampshire paper-converting company. Coated, or "carbonless," paper (used for making duplicate impressions) was and is a substantial part of its business. Over the years, Nashua began breaking into other fields such as office products and computer memory disks. In 1979, after deciding to manufacture its own office copy machines, the company heard about Deming's work through its contacts with a Japanese firm. Nashua immediately hired him.

Deming's first task with Nashua was to analyze the machinery that applies the coating to carbonless paper: a crucial piece of equipment in the manufacturing process. In simple terms, Deming analyzed what the machine could do without human adjustments, determined its optimum level of production according to specific customer quality levels, and allowed the machine to run its own course. In the words of Donald Hunter, manufacturing manager for Nashua:

> We've applied the Deming statistical technique to our carbonless coating operation. Once the process was under control, we were able to save up to five hundred thousand dollars by reducing the coat weight and also maintaining consistent customer quality. [This process] has also allowed us to free up personnel [and] make them available for testing in other areas. . . . Before the use of Dr. Deming's techniques, we were constantly changing the conditions on the coater.

Deming's statistical analysis techniques are now in operation across the entire plant. Yet the process of gaining acceptance for the new techniques was not an easy one. William E. Conaway, president of Nashua, estimates that he spent a total of three months in thinking, talking to people, going to meetings, writing memos, and generally convincing his management staff that the process would work. But Conaway's dedication alone was not enough. Today, he estimates that 100 to 200 of the managers in his company spend 25 to 30 percent of their time furthering the quality control program. For Nashua, the results are well worth the sacrifices.

Perhaps the Deming process is best described in Dobyn's words:

> The idea is to first establish what a product should be or what a process should do. From then on, if you leave it alone, it is always the same. But the Deming method also involves constant monitoring of the system, particularly by the people who do the work. The program to do it better, faster, and easier never stops.

From these words, it is apparent that the Deming process demands involvement from all levels of employees, be they managers or assembly-line workers. Cooperation and dedication are a must. Ideas on what is being done right and what is being done wrong must be offered. And so we come full circle. The market determines how the product should be made, and what the product should cost. Workers are charged with making the product, and meeting cost guidelines. If one link in the system breaks down, the entire system loses its capacity for productivity.

Why have the Japanese been so successful with this "ecosystem" approach to manufacturing? Why can't United States industries follow the same approach? Perhaps the answer is found in this conversation between Lloyd Dobyns and W. Edward Deming:

Dobyns: Is there an attitudinal difference between the United States and Japan?

Deming: They are using statistical methods. They have not only learned them, they have absorbed them, as the Japanese absorb other good things of cultures. They are giving back to the world the products from statistical control of quality in a form that the world has never seen before.

Dobyns: Would the same methods work in the United States—could we do the same thing?

Deming: Why, of course we could. Everybody knows that we can do it.

Dobyns: Why don't we?

Deming: There's no determination to do it. We have no idea what's the right thing to do. We have no goal.

Panel Members React

Moderator: Jerry Olson
State Director for Vocational Education
Pennsylvania

Panel: Joe Mills
State Director for Vocational Education
Florida

Bill Ashley
Research Specialist
National Center for Research in Vocational Education
The Ohio State University

Betty Abbott
Field Service Representative
Nebraska Department of Economic Development
Omaha, Nebraska

Dave Hughes
President
National Oats Company
Cedar Rapids, Iowa

Panel Members React

Jerry Olson (Moderator): We have just seen a most thought-provoking film. Our four panel members are here to deal with the issues presented. After the panel members make their statements, the discussion will then be opened up for remarks from the floor.

Betty Abbott: My reaction to the film comes from my perspective as a field service representative for the Department of Development in Nebraska. The Department works with present industry and also strives to bring new industry to Nebraska.

We brag in the Midwest about our work ethic and productivity and how this has paid dividends, and we also talk about the advantages of the Right to Work law in Nebraska. The state is putting out much effort to work with both its major industries and its small businesses. As you noticed, the NBC

film talked about the Nucor Steel Corporation in Nebraska. We believe that the work ethic is very important to productivity, as are appropriate incentives. Another important factor is the difficulty that business and industry have in keeping up with technology. New machinery and new technological processes mean training people to do new or changing jobs.

We are finding that training is the first step in bringing up productivity. We have a lot of organizations and agencies involved in training: community and technical colleges, CETA, Private Industry Councils, and state-sponsored start-up training for workers.

Dave Hughes: My firm, the National Oats Company, is involved in the manufacture of oatmeal and oat products, popcorn, farina, cornmeal, grits, and so forth. We do business not only throughout the United States, but operate in 120 foreign countries.

Our company is conducting a quality circle program. The individual conducting the program made some interesting statements. He said it is absolutely amazing that for the past twenty years the Japanese have sent their bright, young people to this country to attend school with us; they have attended the same business administration schools that many of us did and heard exactly the same things. But their perceptions were very different from ours. Our reaction was, "Those are lovely theories, but they don't work." The Japanese did not know that—so they went back and put them into practice.

I take strong exception to what the moderator in the film was saying as he closed it. Our productivity problems do not stem from our having a management system based on confrontation, as contrasted with the Japanese system of consensus. It is only so if we insist on it being so.

Let me make one point clear. Running a business is not a democracy. It is a monarchy in its purest form in many ways. The buck stops with whoever is heading that company. But with that authority goes a tremendous amount of responsibility, and that, to me, is the key difference between what the Japanese have done and what we as American management have primarily done. There is a major difference in attitude because of that responsibility.

I would like to share with you just a few attitudes that we at National Oats have, and I do mean we, because I am talking for all 375 employees of the company. First of all, there was a comment made by the auto worker in the film; he said he wanted to be somebody. Is there anybody in this room who does not want to be somebody? All of us do. And we should be, because we are. You've got to accept that as a basic fact in your management philosophy or, in my opinion, you have very serious trouble.

We follow a practice in our company by which we want the decisions made at the lowest possible level in the organization, and in many cases those decisions rest with the person who is doing the job. This requires training and a wide-open sharing of information. As far as I know, there is not one person in our company who is not fully aware of every element, every philosophy, every objective, every strategy, every tactic of our strategic and operational plans. For this kind of management style to function, it presupposes trust in people. I do not know of anyone in our company who has ever gotten into serious trouble for making a mistake—the first time. But make it a second time and there is a very serious problem.

In my opinion, it all comes down to a basic philosophy that management must accept in order to make an employee involvement program work—that is, to get people to give the productivity they have in them. I firmly believe that there is nothing as wondrous as the human mind.

Joe Mills: My observation is going to come from a different angle. To give you an explanation of where I am coming from, my agency has the full responsibility in the state of Florida of assisting sixty-seven school districts and twenty-eight community colleges to deliver vocational training. Over the last three years in the southeastern United States, we have had a unit called the Southeastern United States/Japan Association. Some of us, including myself, have had the opportunity to visit Japan through that organization.

One of the things that I was interested in as I saw the film and as I thought about my trip to Japan was that nowhere did the film indicate that any training was taking place in Japan outside of the plants. If you compare our ability to train people prior to entrance into business or industry to the secondary and postsecondary vocational training they have in Japan, we far outstrip them. I did visit three different schools in Japan, two administered by the Department of Labor, one by a local department of education. Two were in Tokyo and one in Osaka. I was not in any way impressed with what they had there. What they have in Japan is a training system that operates basically within industry.

The observations made in the film about productivity and labor are very true. We sat down in Japan with the staff of Technique Incorporated, a company that has made excellent high fidelity equipment. The gentleman sitting next to me was the labor representative for that company, and he explained to me that the Japanese learned that they ought to have labor unions from a gentleman named General McArthur. But the Japanese labor unions are different from ours, in that they are totally within the company themselves.

All of the good things you saw in the NBC film about what management does for labor in Japan is absolutely true. I think the film showed that basically they do not fire anybody over there, even if an employee is not really capable or does not do a job. Their philosophy is that they have a responsibility to use that human resource properly, the way they have a responsibility to make proper use of the other resources within the company, and so they make a point of training or retraining the person.

In Japan I was impressed with the way they were using retired workers. The Department of Labor in Japan takes retired workers from manufacturing industries and retrains these workers for service industries. They are retraining older workers because there are shortages of trained people in some of those fields, and they believe the older worker is the one that can do the best job.

I do not know whether these concepts could be applied in this country or not. As we talk about it, though, I think our role as vocational educators as it relates to training people to help boost productivity and economic development could make this clearly possible. Within public education and within the private sector, too, we are capable of meeting the training needs of industry in America.

What is obvious from the NBC film, and from what I have seen over a series of twelve meetings we held in the state of Florida, is that the key problem to be overcome is a lack of adequate communication. Business and industry have not been aware of the potential of the educational establishment within America, and the educational establishment has not been selling its capabilities to business and industry. If there is one important thing that I observed in this film, it is that the Japanese have recognized the relationship of good communications to productivity. In America we need to let the business people know about the potential of secondary and postsecondary training for improving productivity. And, if business and industry wish us to make a contribution to solving this problem, they must seek out the educational institutions that are available to them.

Bill Ashley: Like some other members of the panel, I had some difficulty after watching the film in sorting out what I would like to say. Let me tell you briefly about a related project we have here at the National Center. We are looking at what is happening in the technology areas of communications, energy, manufacturing processes, data handling processes (primarily computer-related), and biological and health technologies. What we are trying to identify are exemplary programs at the postsecondary level in the United States that are working in new or innovative ways with business and industry to speed up the processes of technology transfer and technology adaptation.

The importance of learning more about the processes by which new technology is transferred or is adopted can be highlighted by sharing with you some observations on patents. Patent registration and the number of patents are the commonly quoted indicators of the level of research and development, which is a superficial indicator of productivity. For many inventions, patents are not sought. Many inventions are not commercially applicable even if they are patented. So from all the patents, few ever become commercially applied innovations, and of the innovations that do make it as commercial ventures, few have lasting impacts on the market. That is taking an historical perspective, looking back several hundred years. So patents alone are not necessarily the best indicator.

The problem is how to speed up the process of getting the best new technology widely adopted. That is the key to using technology to improve productivity. If only one company uses it, that company might improve its productivity, but the overall aggregate benefit is derived when an entire industry universally accepts and adopts a new technology. Word processors, for example, have significantly increased the efficiency of information handling in many finance, banking, insurance, and paper-oriented occupations or industries. Had that not happened—had only a few places used word processing—the impact of that technology would be insignificant.

Another concern I have is dealing with aggregate statistics. The productivity in the United States did, in fact, show a slight decline in 1979 and 1980, but if you break it down by sectors, there are some industries that increased their productivity, their sales, and their market penetration by much higher rates than are represented by any sort of aggregate statistic for the entire economy. For example, the growth rate in the microelectronics and high-technology industries has been about 12-15 percent. In terms of computer manufacturing we outproduce the Japanese, but they are now aggressively pursuing the computer market.

I think an issue relevant to this conference is that innovation does not necessarily mean using new technology; it can simply be finding a smarter way of using existing technology. Either way, new technologies or higher-level use of existing technologies require a trained work force. That work force may not constitute the same size work force as older production technology required. There may be fewer technicians, but they will have to be better trained, because they'll do more specialized kinds of work.

The speed at which technology is transferred from its original conception into widescale adaptation is dependent upon skilled labor, perceptive attitudes of management (including a positive attitude toward risk-taking for long-range benefits), and capital formation. You cannot buy new technology if you do not have the money. I do not know what vocational education can do about capital formation, but we can certainly do a lot about training the work force.

The role of vocational education has to expand to pay attention to training for other than lower-level, craft-oriented and production jobs. I think vocational education has to pay more attention to management and to emerging technologies. Vocational programs need to develop a mechanism for responding to training needs in new, high-risk occupational areas. If we are really going to get out there and do training for new occupations, we are going to have to be way ahead

of the labor market data projections. There may not always be adequate statistics to justify approval for a new program area, because new kinds of jobs generally do not get into the statistical employment registers until two or three years after they are fairly widely established.

My recommendation would be that there ought to be some resources targeted for high-risk, fast response training programs in the new, more exotic, and rapidly emerging high-technology occupations. We must be willing to take the risks. The businesses and industries that implement the technology must be willing to take risks. Educational agencies must be willing to take some risks, too. Otherwise, we are going to be training people for jobs that are subject to displacement by the next wave of new technology. If we want to get out in front and aid industry in adopting new, more productive technologies, then vocational education programs will have to be more flexible and responsive to technological changes.

Jerry Olson (Moderator): I would like to underscore what the panel has already addressed, and make an additional point that I feel needs to be emphasized—one related to training. In the NBC film, Herb Striner said that there is little training to upgrade skills in America. Surely some of you will want to take exception to that statement. Other areas that should be discussed are the work ethic, employee attitudes, and capital formation. I would like to invite the other conference participants to react to the documentary film and to the comments by the panel.

Question from Audience: Mr. Hughes, what is your company's expectation of education in general, and of vocational-technical education in particular?

Dave Hughes: Most of our employees meet their educational needs in the area immediately surrounding Cedar Rapids, Iowa—a community of about a hundred thousand people. It has two four-year institutions of higher learning within its boundaries, the University of Iowa is twenty miles away, there is an excellent public school system as well as private schools, and we're blessed with having Kirkwood Community College in Cedar Rapids. We feel that the continuing education and personal growth of our people are critically important to our further growth. We have a tuition refund plan that applies to every employee in the company. We provide 100 percent reimbursement for any course in which they attain a "C" or better. The course does not have to be specifically job-related.

It has been very beneficial to us to have these educational institutions in our area. A number of our people have gotten their associate degrees through the community college, taking courses that had special application to their jobs.

We are also careful about the engineering of our jobs. We are careful to increase the mental demands the jobs make on the workers constantly. We feel this growth is important to individuals and to the company. That is why the educational facilities in the area are important to us. We know that as employees grow, we must find ways to use their increased capabilities.

Question from Audience: Can we come to grips here with what the schools' role is in productivity? I would like to hear more from the panel on this topic.

Bill Ashley: Let me try to answer your question directly. I would like to give credit to what I think is a history of vocational education's successful responses to changes in industry and the demands of

industry on training. Vocational education is not what it was fifty years ago; it has responded on the large scale, it has changed, it has adapted, and it has enlarged considerably the range of programs that it offers, especially at the postsecondary level. But our work is far from over.

If you look at those industries that are lagging in productivity, you may find that they are in critical need of a new type of technician—one who is not merely a textbook technician hired to be a support person to an engineer. Half of the engineers and scientists in the United States are involved in military research, which leaves only the other half—and such people are always in short supply—to meet the needs of other industries in this country. Technicians are needed who can play more innovative roles and do not just perform as support persons. For example, Cincinnati Milacron, one of the larger machine manufacturing companies in this country, knows very clearly what it expects of its scientists and engineers. It also knows very clearly what it needs and expects of two-year technical graduates. Cincinnati Milacron works cooperatively with schools to get the kinds of training it needs.

I think that the new technician is going to have to be trained to know more about the process of innovation. The Japanese innovate by buying a machine and putting 100 technicians to work taking it apart, examining it, and making their own modifications. There are a number of companies in this country that probably could profit by making minor modifications to their existing equipment, making it semiautomated or fully automated, but that takes technicians who may not have come from a standardized two-year electronics technology program.

There may have to be the infusion of quasi-engineering approaches into two-year technical programs. A program director at one site we visited told us that his program probably would have to extend to three years because there was so much to be learned. There is a need to train a kind of technician who can bring together more of the creative, investigative talents that are dying out as the old occupation of master mechanic dies out in this country. Furthermore, the shortage in these talents is not being met by engineers and scientists, either, because of the shortage of such people that I mentioned earlier. It is the technicians who will have to take up the slack, and the post-secondary vocational schools that will have to train those new technicians.

Jerry Olson (Moderator): I am going to ask Betty Abbott to respond to this question, too. I find the topic very interesting and it is certainly tied in with the previous question. Then I would like Joe Mills to come back and respond. I think Joe did answer the first question related to inservice training, but I think we should also consider the preservice training that schools are expected to provide for prospective workers.

Betty Abbott: I want to discuss two things. The first relates to what I said previously about productivity and the training of people on the job. Obviously, when you compare an experienced worker and a novice who has just come on the job, you will see a significant difference in productivity. This is one of the reasons we have embarked on a start-up training program. In such a program, if a company changes equipment, people come in at night to receive training on that equipment. There is a great need for this type of retraining. The southeast part of the United States has done an excellent job with this, but it is still relatively new.

The other thing I want to discuss is the fact that there is a lag—a gap—between what is being provided in training and what is needed in training. For the first time we have had a very definite policy recommended to our State Board regarding economic development and vocational education. I was appalled to discover there was no really recent study asking business and industry, "What do you need, what are the kinds of training needed for the jobs you have, are you making a change in

your production, what are you doing, how many people do you need," and so forth. There was no information so we could go to the technical and community colleges and say, "Instead of ten mechanics we need fifteen tool and die workers," or the like. But, it is beginning now. I think one of our biggest problems may be that the people in economic development aren't telling the people in vocational education when there is a need for a different kind of trainee. I do not feel that the start-up training program on our part is necessarily our only role, but it has been a successful one.

Joe Mills: I would like to address a related question. I have asked myself and others in the field of education, "Are we productive, ourselves?" We are spending over $400 million in the state of Florida on vocational training. The budget this year will be about $424 million. We as educators need to look at the results of what we're doing. The question I ask myself is, "Should we look at the placement rates of students who finish programs in order to gauge the productivity or nonproductivity of the program?" I know if you talk to a lot of educators, they will say that is not our job. Considering the large sum of money that we have now, it bothers me that we spend the paltry sum of $1 million for economic development purposes, specifically for quick-start programs.

I would also like to ask those in industry, "Are you really going out to the educational establishments and placing some demands on them, not only for the kind of training you need, but for the quality you need? And are you then helping establish that quality?"

Jerry Olson (Moderator): Anyone want to comment?

Dave Hughes: I do think you can change attitudes through education, and attitudinal change is the force that creates a lot of the productivity change, in my opinion. To give you proof positive, in our mill we now produce 50 percent more products today than we did three years ago, with exactly the same number of people, and all that is due to an attitudinal change.

Comment from Audience: I represent industry. My reaction to the NBC film and to panel comments is that I feel there is not anything the Japanese have done that we cannot do. Also, I do not think there has ever been a better time for the vocational education field in this country to make itself heard and appreciated. Vocational education has a tremendous opportunity to become a real working force in this business of the revitalization of American industry.

I happen to favor the development of our human resources. In our corporation we have a vice-president of productivity and a Productivity Center committing millions of dollars to new products and other technology changes that will work. But it is the development of our human resources that really makes the difference. I have found that if we have somebody from outside the company with the title of instructor, doctor, or teacher working with our employees, we avoid a stigma that seems to go with having our engineers trying to teach employees. Having an outside party teaching contributes a great deal.

In developing future or potential employees, vocational education can contribute a tremendous amount. We need people who graduated with the basic skills. But it is up to business and industry management to get out and tell you what other skills we need, with sufficient lead time to give you time to plan your training programs, and it is up to management to tell you what training we need to help upgrade our present employees.

Comment from Audience: It seems to me that at least some of these comments address the subject of modeling from the top down. And there does need to be a great deal done in that direction. I think Joe commented earlier about the word "productivity." One of the things vocational education is struggling with is what is our field's productivity going to be measured against? And if this is the ripe opportunity to become visible and take a new type of leadership, we are clearly going to have to define the role as it relates to issues such as productivity. We will have to determine what corporate people, industry people, and society generally expect of the institution called vocational education.

Part III

EXISTING PROGRAMS IN VOCATIONAL EDUCATION TO FOSTER ECONOMIC DEVELOPMENT AND PRODUCTIVITY

- Ohio's Program (Charles B. Dygert)
- Georgia's Program (Jack P. Haunson)
- Florida's Program (Lawrence S. Taylor)

Ohio's Program

Charles B. Dygert
Director
Educational Communication for
Domestic and Foreign Business and Industry
Ohio Department of Education

Our original problem in involving vocational education with economic development efforts in Ohio was that vocational education had lost some of its communication capacity with the business community. We realized we were going to have to do something, and we began working at the state level with the Ohio Department of Economic and Community Development.

Our major job in the Ohio Department of Education is to teach educators about development and to teach development people about education. Development people need to know how to use the educational resources in each vocational-technical consortium. Let us consider the consortium in Toledo as a case in point. This consortium area includes Toledo and six surrounding counties. The director of the consortium is housed in the Toledo Chamber of Commerce. There is a brochure on that consortium (and on every other consortium) that highlights the vocational-technical facilities in that particular area of the state. The only phone number on the brochure is the one for the local chamber of commerce. The reason we did that is because industry persons told us that when they called the school, nothing happened—they had difficulty finding the right person in the school with whom to work. So our educational-economic specialists are liaisons between local education and local development. Their job is primarily public relations—to be visible. They work through their local chamber of commerce, belong to the Ohio Development Association, and are visible in the community.

When a company has a problem or a need related to training, it provides us with training information. We take their request and prepare a training cost estimate and indicate how much of it the state can cover. This proposal is returned to the chief executive officer in the company, and when we all agree, a contract is written between the state of Ohio (the Ohio Department of Education and/or the Department of Economic and Community Development) and a local school district that acts as a business liaison for the state. Also, many times we hire an on-site coordinator. The contract terminates when we feel the company is ready to operate independently.

It is my job at the state level to work with the Department of Economic and Community Development to find the funds for such training programs. We use vocational funds and development funds to cover these activities.

Question from Audience: Will you further explain the organizational set-up of your program within the state structure?

Charles Dygert: When I refer to state development I am talking about our Department of Economic and Community Development. State education is the Ohio Department of Education. The heads of these agencies hold cabinet-level positions, and I work as liaison between the two agencies. Another involved agency is the Ohio Development Council, which is a chief-executive-officer-level leadership team that works for industrial development in Ohio. I am now an ex-officio member of that group and the first member who is an educator. The Ohio Development Association does essentially the same liaison work, and now we have our twenty-three liaison people locally to do the same thing. These are our local education development impact teams.

Question from Audience: Did I understand you to say that the contract is written between education and a particular company?

Charles Dygert: No, we do not write the contract with the company. The company has only to fill out a form for the contracts with the state development and education departments and a local educational institution. For the local companies to receive their training money, all they do is generate an invoice. The educational effort is monitored by local vocational or technical education.

Georgia's Program

Jack P. Haunson
Coordinator of Industrial Training
Georgia State Department of Education

I am one of three industrial training coordinators with the state of Georgia. About ten years ago in Georgia we established a Quick-Start program to assist both new and expanding industry in training entry-level personnel. Since it started, we have trained more than thirty thousand people for jobs. Two-thirds of this number have come through the program in the last three years. Our Quick-Start program works through twenty-nine area vocational–technical schools in 159 counties, and in each of these schools we have an off-campus coordinator who calls on the local industry and also assists the state when new industry comes in. We work as a team with the local chambers of commerce, and Georgia Chamber of Commerce, and the Georgia Department of Industry and Trade.

Most new industry that comes into a state keeps it a secret as long as it can because land values go up. We are working with about 30 companies now who are not identified. We generally know who they are, but we keep them in the wings and call them suspects; then they become the prospects, and then they become the participants in our program. We are working with 77 companies today in some phase of Quick-Start. We worked with more than 500 companies over the last ten years.

Quick-Start is a multimillion-dollar program. The best salesman we have is the governor of our state, who is very strong on our program. He allows us to use the Governor's Mansion for meetings. He will meet with industry representatives in the State Office Building. He will go out on projects with us, and has been dynamic in bringing industry to our state. We are working with companies from Canada, England, France, Germany, and Japan. Next to California, Georgia has more Japanese industry than any other state. There are fifty-four Japanese-owned companies in our state, with twenty-three new plants.

How do we get these people? Well, we are blessed with a lot of natural resources. Also, we are an open state for labor. Industry may not admit this, but it is an incentive. It also puts companies near their markets. Some of the companies we have gotten came from Ohio, but they were expanding. They wanted to be nearer to their market. To succeed, an industry must be close to its raw materials or its final product market.

The Industry and Trade Department helps new and expanding industry get financing. Companies come to the Training Department, and that is where Quick-Start lends its hand. We meet with the new companies coming in, and we diagnose their needs in the way of semiskilled or skilled labor, and then we find the trainers to train these people. We often get well-qualified retirees from industry with a lifetime of valuable experience, or we may tap some of the companies' own people to serve as trainers.

We have nineteen well-qualified quick-start training consultants in the state of Georgia and scattered around the world. We send people to Japan for a year to "clone" one of the jobs and bring it back. We have people in Taiwan, France, Germany, and all over. This brings a good tax base back to our state. We do almost anything that is necessary to provide new or expanding industry with properly trained entry-level employees. In other words, each company may have a different need and we try to fulfill that need, by tailoring the program to fit that particular company. We have been successful, so far, and I hope that we continue to be successful.

Question from Audience: How do you get qualified, competent instructors?

Jack Haunson: When we train for high-skill jobs, the instructors must have the expertise the job requires—and this usually means personnel from the company being served. If a company has people we consider capable of instructing, we provide an instructor training workshop to give them methods and techniques for teaching their knowledge and skills. For example, we use a lot of former Army trainers, who are very capable in preparing semiskilled workers. If the company does not have anyone to do the job, then we search elsewhere in industry. We are constantly employing people on a one-year or short-term basis.

Question from Audience: Would you describe what you finance in helping a new company get started in your state?

Jack Haunson: After we approve money for a particular project, we diagnose what it will need in the way of instructors, salaries, equipment, and supplies. This is then provided to the cooperating schools, which administer and monitor the project. We require that the schools turn in reports on the number of people in the training program and how many are actually hired. We also work with the Georgia Department of Labor to help companies screen people who would qualify for the work.

We did not invent all of these good ideas; we took many of them from our sister states. As they say, if you copy one person, that is stealing; but if you copy several, it is research. We do a lot of research.

Florida's Program

Lawrence S. Taylor
Consultant
Industry Services Training
Division of Vocational Education
Florida Department of Education

Florida's Industry Services Training program, to which I am a consultant, is founded in state law with the mandate to meet the employee training needs of new and expanding industry. This industry is identified for us by the Florida State Department of Commerce, the Florida State Division of Economic Development, local chambers of commerce, local development groups, and individuals. We are given the challenge to take whatever these training needs are and convert them into trained workers.

We use the existing structure within the state. There are sixty-seven districts, and within those districts there are thirty-three area vocational-technical schools operated by a district. There are twenty-eight community colleges, fourteen of which operate a designed area vocational-technical center. Since each of these institutions and districts is autonomous, we cannot tell them what to do. We have to convince them. We take a prospective company that wants to expand or move into the state, arrange with the local educational agency to provide the training the company needs, and provide the resources to see that it is done. The state annually appropriates money directly to the Industry Services Training program for this purpose.

Our program is housed as part of the State Department of Education, Division of Vocational Education, and by law we work cooperatively with the State Development Division, which is the Florida Chamber of Commerce. So far we have been doing pretty well. I do not mind saying that I am after your industry. I want to get all I can.

To give you an example of how successful we have been in the last two and one-half to three years, I will quote some figures. In fiscal year 1978–79, we had new capital investment of some $150 million in the state. In fiscal year 1979–80, which was the first year for our present governor, we had about $700 million. About a month ago, I would have reported that we had over $1 billion for 1980–81, but about that time Western Electric announced a $700 million new plant in Orlando, so add that to the $1 billion.

We have done some things in Florida that have helped us not only to attract good prospective workers, but to make the population at large aware of these opportunities. We have also done some things to help companies meet an immediate need that we cannot meet by quick-start training. We cannot train a technician in six weeks or a tool and die worker in two years. We have what we call the CAPS system, the Cooperative Agency Placement Service. We take every vocational-technical enrollee in the state who is ready to graduate from a secondary or postsecondary school and who wants to go to work, and we register these persons in the CAPS program as being available to be hired.

Thirty-five thousand employers have also registered in this system, listing the skills they require. We put these people together. For instance, we give an employer such as Harris Corporation in Broward County the names of people who have been trained in electronics technology and are willing to go to work. From that point, it is up to the Harris Corporation to make the contact, to do the interviewing, and to either hire or not hire.

I would have to agree with the philosophy of the Quick-Start program in Georgia, in that we also will do basically whatever is necessary to meet the needs of a business or industry—whether it is an expanding company such as Grumman, or a new one moving into Miami such as Rolls Royce. Every situation is different in some aspect. We have the flexibility and the delivery system in the state to do it. I do not have accurate figures, but about half of the programs we help initiate turn into regular, ongoing offerings at that center. The other half are definitely short-term needs, and once that need is met, we fold up our tent and go away.

Question from Audience: How much of your work serves industry that is presently in Florida?

Lawrence Taylor: We find that approximately 60 to 80 percent of our effort is directed toward existing industry in the state.

Question from Audience: What do you do with the products that are made during the training process? Can they be sold for profit?

Lawrence Taylor: The products cannot be sold for profit even when the state pays for the materials, owns the equipment, and provides nonpaid workers producing the product. However, state law does provide some flexibility. For instance, the state needs mold-injected fiberglass shower stalls. If we sell these, we can take the money and turn it back into the training program. Also, some final products can be recycled, such as with foundry or casting operations. But basically, products cannot be sold for profit.

Part IV

OKLAHOMA'S STRATEGY FOR INCREASING PRODUCTIVITY

- Oklahoma's Productivity Consortium (Leo Presley)
- Remarks and Responses to Questions on Oklahoma's Productivity Consortium (Francis Tuttle)

Oklahoma's Productivity Consortium

Leo Presley
Productivity Management Consultant
Oklahoma State Department
Vocational and Technical Education

As I reflect back over ten years of speaking on the topic of productivity, I am aware that it interests many audiences—from high school students to retired persons, and, of course, educators.

I would like to refer to the paper handed out at this conference by Dennis Sullivan, titled *Improving Productivity in the Work Force.* A chart in it illustrates some important facts (see figure 1). It shows that from the end of World War II up to 1967 we had an average increase of productivity per year of 3.2 percent. Then, from 1967 to 1978, that average per year began to deviate. This is the measure of the Gross National Product over the input of person-hours of labor in a particular time period.

The impact of the decline in productivity growth is significant and direct. The fact that productivity declined from 3.2 percent during that period of time cost the average American family thirty-seven hundred dollars in 1978 and forty-two hundred dollars in 1979. The point here is that there is a direct tie-in between productivity and inflation, and it affects every American. No one can escape its effect.

We have heard a lot at this conference—in the film, panel presentations, and occasional papers —about the importance of worker attitudes on productivity. And, related to worker attitudes, we have heard about the importance of the work environment created by management. Workers have a need for feelings of personal accomplishment and self-fulfillment in work. Whether or not these needs are met affects worker attitudes. Business people will ask, "What can we do to motivate our employees?" My answer to that is to eliminate those things that destroy motivation in the workplace. Take a look at the organizational climate. There is a lot more than skill training that affects productivity.

The presentations we have heard at this conference have revealed that the work ethic is alive and well in the right organizational climate. Dave Hughes of National Oats has told us how employees are motivated there through involvement and responsibility. In the NBC film, we learned from the GM worker who said, "What I want to do is be somebody. I want to be important." We need to keep these things in mind as we look at vocational education's role in productivity.

In Oklahoma, we've structured ourselves to respond to management's needs in business and industry. When we talked to firms such as Nucor Steel, Romac Industries, and Donnelly-Mirrors about the need for increased productivity, they talked to us about implementing a concept referred to as participative management—that is, allowing employees to have more input into the decision-making process concerning their work.

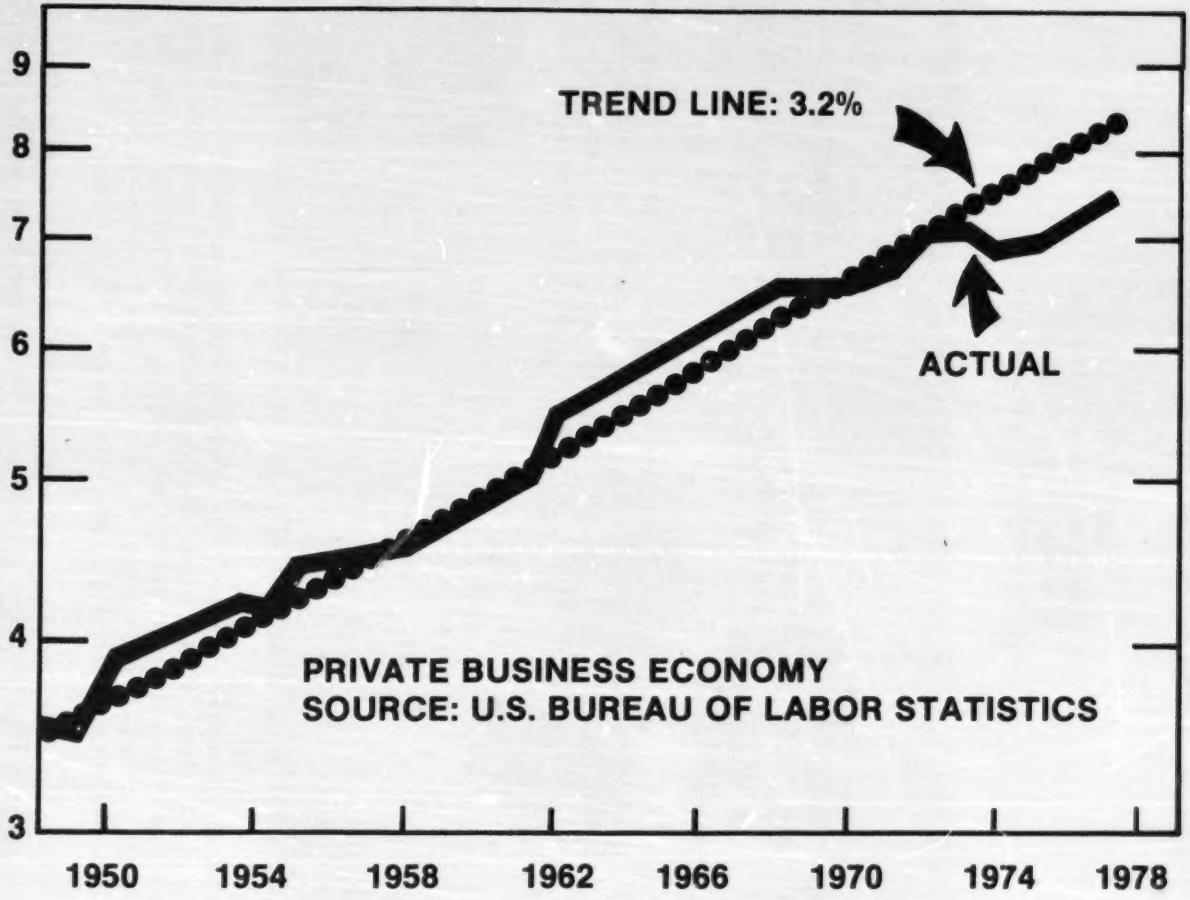

Figure 1. U.S. productivity from 1948 to 1978.

The point of all this is that when vocational educators attack the problem of productivity, traditionally they concentrate their efforts in the area of skill development. Business and industry approach the problem of productivity in terms of management development. On the whole, it has been private firms that have provided that service to industry.

In Oklahoma, vocational education is geared up to meet that need. We look at the effect of the system of management on the quality of work life. We are talking about such things as enabling workers to have input into how they can improve their work environment and make things work better. That is an all-important part of the Quality of Work Life (QWL) program at General Motors. That is why we say in Oklahoma that (QWL + Productivity) + Oklahoma Workers = Total Oklahoma.

That is also why we formed the Oklahoma Productivity Consortium (OPC). Its emphasis is on the area of human resource development, which we separate into three segments: (a) management support services, (b) research and development, and (c) lifestyle support services (see figure 2). The Consortium or Center is operated through a board of directors. The board consists of Dr. Francis Tuttle, director of the Oklahoma Department of Vocational Education; Jay Casey, state director of economic development; and Jack Springer, director of the Oklahoma Chamber of Commerce. The Center's board of directors is directly tied into the governor's office. We also have identified a business-industry-labor advisory board to be appointed by the governor. This is the Governor's Advisory Board on Productivity.

We wanted to begin the Consortium's work in the Management Support Services area because this is where we felt we could make the quickest impact (see figure 3). A Public Information Department is part of that. Its objective is to provide an awareness of the Oklahoma Productivity Consortium and what it is. Its services include a speakers' bureau, a slide/tape presentation, newsletter, and seminars. The newsletter will be quarterly and will be mailed to businesses and industries across the state. The seminars will be conducted in vocational schools throughout the state to create productivity awareness.

The Research Department in the Productivity Consortium is designed to identify and obtain resources pertaining to productivity. We want to become an information clearinghouse on issues related to productivity for use by businesses and industries in the state of Oklahoma. A business person (such as a chief executive officer of a small organization or a human resources director of a large organization) who wants some productivity-related information can plug into our system, and we will be able to identify who is doing what, where they are doing it, and how to go about getting it if we cannot offer it ourselves.

We also want to be able to provide comparative ratios for business and industry. We have automobile manufacturers in our state, and they want to know how they compare on productivity to other auto manufacturers or to other types of industries. We want to be able to have the data and information available so they can see where they stand.

The objective of the Standard Programs Department is to create an awareness to the Oklahoma Productivity Consortium programs and implementation procedures. We want to help companies apply communication survey feedback techniques and management development techniques. These will involve providing information on such things as quality circles, organizational climate surveys, participative management, and team management concepts. There can be management seminars to report what we are finding that is working in the field with Nucor Steel, Donnelly-Mirrors, National Oats, and different types of companies. We will bring back and share that type of information in an open forum.

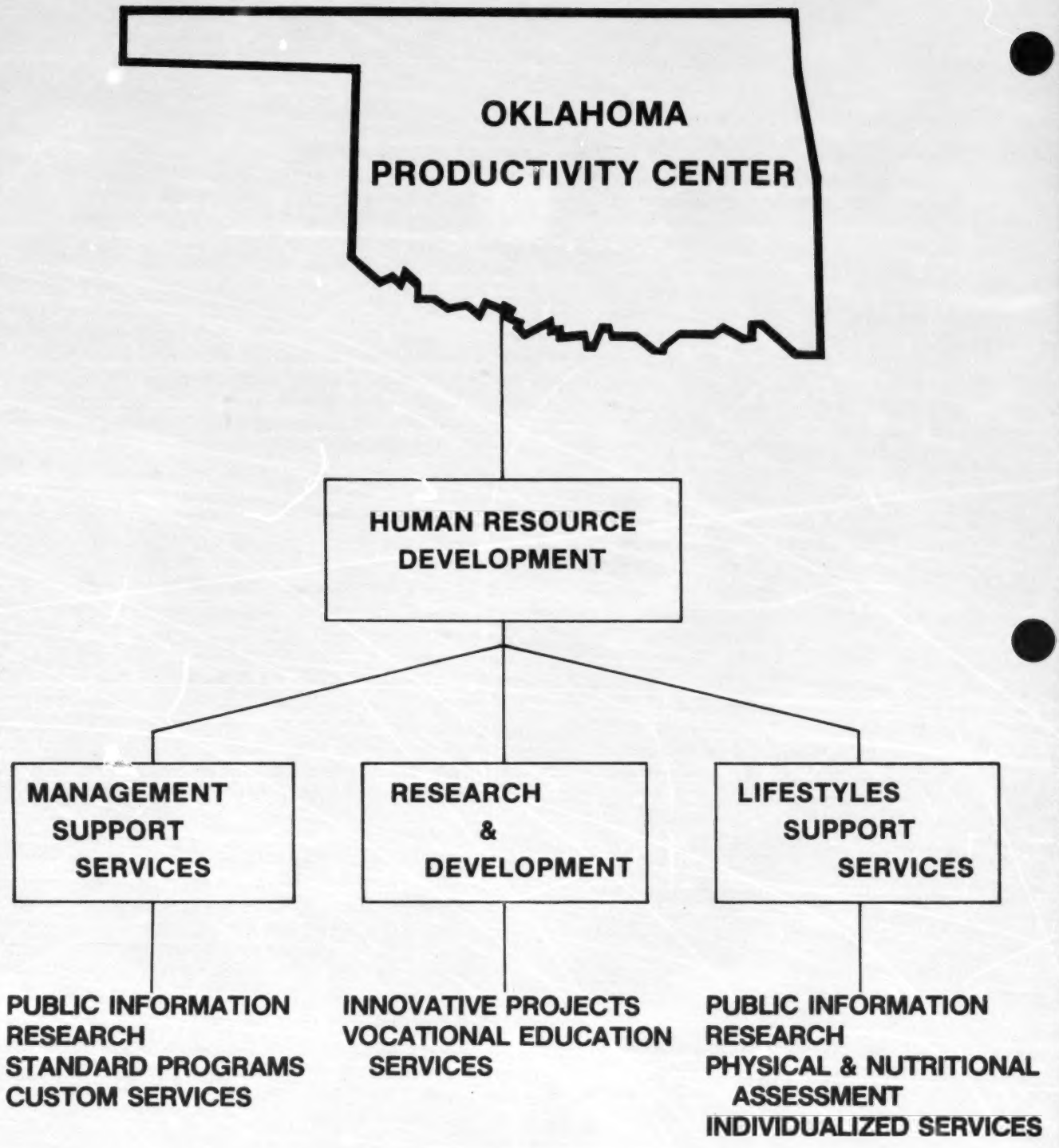

Figure 2. Three areas of human resource development, according to the Oklahoma Productivity Consortium.

MANAGEMENT SUPPORT SERVICES

A. PUBLIC INFORMATION DEPARTMENT

Objective: To provide an awareness of OPC
Services:
(1.) Speakers bureau
(2.) OPC slide/tape presentation
(3.) OPC newsletter
(4.) Productivity awareness seminars

B. RESEARCH DEPARTMENT

Objective: To identify and obtain all resources pertaining to productivity
Services:
(1.) Data clearinghouse
(2.) Comparative ratios for business/industry
(3.) Case studies

C. STANDARD PROGRAMS DEPARTMENT

Objective: To create an awareness of OPC programs and implementation procedures
Services:
(1.) Communication-survey feedback techniques
(2.) Management development techniques

D. CUSTOM SERVICES DEPARTMENT

Objective: To create in-house implementation of productivity enhancement techniques
Services:
(1.) Needs analysis
(2.) Implementation and/or modification of productivity enhancement techniques
(3.) Continuous consultation

Figure 3. Management support services provided by the Oklahoma Productivity Consortium (OPC).

We have what we call our Custom Services Department in the Productivity Consortium. Its objective is to create in-house implementation of productivity enhancement techniques. We expect to provide a service of going inside a company and doing an analysis of what the organization needs to do to improve productivity. This would be followed up with consultation to help with the implementation of a new concept or modification of an already existing concept, be it an incentive program, a gain-sharing program, or so forth. We plan to target four different areas: business, industry, government, and education.

The Consortium operates on the concept that productivity is the efficient utilization of resources. If you look at productivity in these terms, then you quickly realize that there is room for productivity improvement not only in manufacturing shops, but also in educational institutions, government agencies, hospitals, or any organization with resources. Any organization has potential for productivity improvement.

Next, let us look at the Consortium's research and development objectives (see figure 4). This will be the second phase of what we plan to do. We anticipate creating two departments; one will be the Innovative Projects Department, and the other will be the Vocational Education Services Department. We want to be able to determine the impact of unique productivity enhancement techniques, and this will be one of the main objectives of the Innovative Projects Department. Once we determine the impact of such productivity enhancement techniques, we will be in a position to identify funding sources for pilot projects with different industry areas or different educational institutions. We can then implement the feasibility and design studies, as well as provide monitoring and evaluation of those projects on an ongoing basis.

The second department will be our Vocational Education Services Department. Its services will include upgrading curricula for skills training in industry as well as putting productivity concepts into curricula. One of the comments made earlier in this conference that stood out in my mind was, "Give us people with analytical skills." When you start looking at quality circles, you have employees on the shop floor who are using analytical skills to determine problems and devise solutions to those problems.

From the standpoint of curriculum development, people ought to be made aware of productivity and its impact on them. Employees need to know such things as the fact that the decline in our productivity rate over the past ten to twelve years has cost each of them thirty-seven hundred dollars out of their pockets in 1978, forty-two hundred dollars in 1979, and probably five thousand dollars in 1980. They ought to be able to understand the direct correlation between their output and input—that the more useful a resource they become, the better the productivity. We see ourselves injecting that into the curriculum and then providing administrative and teacher inservice training on the same concepts. If you plan to teach these ideas to the students, you need to make sure the teachers understand them, and then you must monitor and evaluate their implementation through instruction in the classroom.

We think our Lifestyle Support Services Department is quite an innovative idea (see figure 5). On my desk back in Oklahoma I have a number of articles that show a definite correlation between physical fitness and morale—that is, the better the morale, the better the attitude and the better the attitude, the greater the productivity. Companies are helping their people be healthy, for they are aware of the effect of physical fitness on productivity. Companies are booking their people into places such as the Cooper Clinic to get complete physical and nutritional assessments. Based upon the assessments of a client's physical fitness and diet, combined with the person's age, the Clinic recommends a diet to correct nutritional deficiencies and then recommends a physical fitness program.

RESEARCH & DEVELOPMENT

A. INNOVATIVE PROJECTS DEPARTMENT

Objective: To determine impact of unique productivity enhancement techniques
Services:
(1.) Identification of project funding sources
(2.) Feasibility and design studies
(3.) Monitoring and Evaluation

B. VOCATIONAL EDUCATION SERVICES DEPARTMENT

Objective: To integrate productivity enhancement techniques into school curriculum
Services:
(1.) Curriculum development
(2.) Administrative and teacher inservice training
(3.) Monitoring and evaluation

Figure 4. Research and development services provided by the Oklahoma Productivity Consortium.

LIFESTYLE SUPPORT SERVICES

A. PUBLIC INFORMATION DEPARTMENT

Objective: To provide an awareness of OPC
Services:
(1.) Speakers' Bureau
(2.) OPC slide/tape presentation
(3.) OPC newsletter
(4.) Preventive medicine/lifestyles seminars

B. RESEARCH DEPARTMENT

Objective: To identify and obtain all resources pertaining to the effect of nutritional and physical fitness and its relationship to individual productivity
Services:
(1.) Data clearinghouse
(2.) Case studies: (organizational and individual)

C. PHYSICAL AND NUTRITIONAL ASSESSMENT DEPARTMENT

Objective: To provide an assessment of physical fitness and/or nutritional deficiences.
Services:
(1.) Complete physcial analysis
A. Nutritional
B. Physical

D. INDIVIDUALIZED SERVICES

Objective: To prescribe an individualized improvement plan
Services:
(1.) Personalized physical fitness program
(2.) Personalized nutritional diet
(3.) Continuous monitoring and evaluation

Figure 5. Lifestyle Support Services Department of the Oklahoma Productivity Consortium.

Incentives are being provided within the bigger organizations for people to get into physical fitness programs. Phillips Petroleum in Bartleville, Oklahoma, is spending thousands of dollars trying to implement a corporatewide physical fitness program. Right next door to the American Productivity Center in Houston, Texas, is a conference center called the Houstonian. Businesses may buy an annual membership to the Houstonian, and as members they can hold conferences there and also have access to the physical and nutritional assessment facilities. When we looked at the emphasis big businesses are putting in this area, we asked ourselves, "Why shouldn't the smaller businesses in Oklahoma also have access to the management concepts, techniques, and human resources capabilities that the big industries have? Why shouldn't they also have access to these health-providing lifestyle programs?"

We want to provide a lifestyle support services system through our Oklahoma Productivity Consortium. The Public Information Department would provide an awareness of OPC's interest in such lifestyle services. Our Research Department would identify and obtain all resources pertaining to the effects of nutritional and physical fitness and their relationship to individual productivity. As with our management support services, we would function as an informational clearinghouse to support and document the need for physical fitness and its impact in the workplace.

We want to establish an organization within the state where companies can send their people to get complete physical and nutritional analyses. Based upon those analyses, clients would receive a recommended program for a nutritionally balanced diet or for their physical fitness improvement. The services provided through lifestyle support services would be individualized improvement plans, personalized physical fitness programs, personalized nutritional diets, and continuous monitoring and evaluation.

Basically, we believe that if you improve the quality of worklife by giving people more input and involvement in making decisions concerning their work and work environments, then they can assume more entrepreneurial attitudes and roles toward their work. By doing these things, you improve the quality of worklife. That, plus the increase in productivity times the number of workers in Oklahoma, provides for the total Oklahoma. We're operating on a basic assumption, which is that within every Oklahoma worker is the desire to perform and achieve at his or her maximum level. We are just trying to provide a mechanism to facilitate that process. To provide for a total Oklahoma, we must develop the total individual, which is why we feel we must confront the whole issue—not just from the standpoint of developing management, or developing skills, but also developing the lifestyles concept.

That, in a nutshell, is what we are doing in Oklahoma to improve productivity. I will be glad to try to answer any questions you may have about our work in Oklahoma.

Question from Audience: What is the makeup of your advisory board?

Leo Presley: The membership consists of chief executive officers of businesses and industries, as well as labor representatives. These include not only manufacturing concerns but a variety of types of businesses, such as banking, hospitals, and service organizations.

Question from Audience: I haven't heard anything about involvement from the agricultural community in this whole process. Is there a reason?

Leo Presley: We feel we have some things we can learn from agriculture. One of the things we are trying to do is set up a business and industry counterpart to the agricultural county extension agent, by which we would play the role of the county extension agent for business and industry as it relates to productivity. Agriculture is already pretty well set up from the standpoint of productivity.

Question from Audience: What is the relationship of your productivity effort to your department's role with vocational and technical training?

Leo Presley: By no means do I want you to think that I'm putting down the concept of training, upgrading skills, and raising skills to higher levels. That has to be our number one priority, because training is why we exist as a department. The Productivity Consortium is an add-on effort to skills development. It will not reduce our efforts in other areas.

Remarks and Responses to Questions on Oklahoma's Productivity Consortium

Francis Tuttle
State Director
Oklahoma State Department of Education

If I have had any success as a director of the Oklahoma Department of Education, it has been in picking good people for my staff. In Leo Presley, I feel I have a high-quality person to lead the Productivity Consortium effort. I also would like to tell all of you that we have about two hundred fifty thousand dollars to expend on this effort the first year. Most of that money will be spent in gearing up and covering the cost of materials, programs, and staff. We'll also have some money to hire consultants, and many of those consultants will come from industry. We hope to be flexible enough that we can do what our industry advisory committee tells us needs to be done.

There are many things going on in industry that I need to know about, and that I believe you need to know about. I know we have heard some of our people ridicule the efforts of industry in training, and I grant you, there are some industries that are not doing very well in training people, but there are training programs that are doing things and using techniques we have not heard about. The one way we are going to learn about the training innovations is to get out there and work with industries and see what they are doing.

One of the first things to do is to make connections with many of the professional associations, especially with the American Society of Training and Development (ASTD). I've gone to two conferences this year that have been sponsored by training directors, and they have been some of the most productive conferences that I've ever been to in my life. As state directors, we should take a lesson from these professional associations as to how they go about organizing a conference. I think that we should get out of the classrooms and out of our offices to find out what industry is doing, as well as what they want us to do. I know that in education we have a bit of a problem spending $250 to $600 to attend a conference, but we also waste a lot of money in other ways that could be better spent in attending such a conference.

I think we need to encourage the directors and the staffs of our local vocational schools to get involved with industry and professional associations, too. We know our practitioners can have a tremendous impact, but this will not happen if they do not get out of those schools and meet with industry to find out what is going on. I think the plan of having a number of people across a state who are not directly tied to the schools, but who work with schools, industries, and governmental agencies, is a good concept. The biggest problem will be to train those people to get out and get acquainted with top people in industry and learn what industry would like vocational education to do for them.

Question from Audience: Based on your activities to date, what insights do you have into inservice programs and technological updating of your instructional staff? How do you go about it?

Francis Tuttle: This year I made personal visits to all of the schools. We sat down for periods of a half a day or more and identified their main needs. In every instance the main need was the technological updating of teachers. We traditionally have tried to update our teachers in a week-long conference, usually held in August before the new school term starts. We are currently planning to revise that type of program completely. Our new approach will be to have a general conference of shorter duration, and to have special training programs for each technical area—for instance, updating programs for the welders, the sheet metal people, and teachers in the various crafts. Last year we sent our auto body teachers to a week-long training program in Dallas that was sponsored by one of the companies, and the teachers all had good comments about it. In some instances I think teachers must be updated by getting employment in industry and working during the summer. We have a lot to do in the area of teacher upgrading, and it has to be a high priority.

Part V

OVERALL REACTIONS OF BUSINESS/INDUSTRY REPRESENTATIVES TO THE CONFERENCE

Business/Industry Representatives React

"What We've Seen and Heard"

Chaired by Kenneth Myers
Personnel Manager
R. T. French Company
Shelley, Idaho

Kenneth Myers (Chairperson): We had a very good meeting. Many points were covered, and I will attempt to highlight those as well as I can.

Those of us in education recognize that there is a lag in education in keeping up with industry's needs. It has become evident that vocational education and industry are not communicating with one another as much as they should or could in a good meaningful, positive manner. Those of us in industry recognize our responsibility, our management obligation, to let the people in vocational education know exactly what we need. Conversely, vocational education administrators must also take the initiative to talk with industry and let companies know what vocational education can do for them.

Industry needs to make every effort possible to get involved with vocational training boards and advisory councils. Through such involvement on some of these particular boards, industry may join with vocational education to become involved in legislation. Industry does carry considerable clout in the legislative arenas, but industry should look to vocational education for guidance in what they can do to help most there.

Considerable discussion was focused on the training of high school students and recent graduates. But let us not forget that adults in adult education programs are one of our best sources of skilled, trained people.

Much of the discussion has focused on the large industries and on working with them very closely. Perhaps the small business, the backbone of our country, the mom-and-pop shop, is being forgotten. We encourage vocational educators to work with the small industries: not to overlook them.

There was concern expressed that training programs often lack direction. Technology in this country has advanced so rapidly that we are likely to see some severe shortages of skilled workers. We need to prepare for this. We admit, by consensus, that vocational education too often tries to be all things to all people. It will no longer work that way.

Vocational education has to get back to the basics, and this is our major concern when we talk competency testing. If vocational test designers look for a model that can serve in all areas, they will not find one. Each area is unique in its own way. Vocational education must not lose sight of

the goals in its charge, and of the fact that the ultimate users of the product, the workers and employers, are those to whom vocational education must answer. Vocational education needs to make sure that it is teaching to train people for productive worklives in private industry and the public sector.

On behalf of the members invited to participate in this national conference, I would like to say that we sincerely appreciate the forum and the opportunity to express our views.

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